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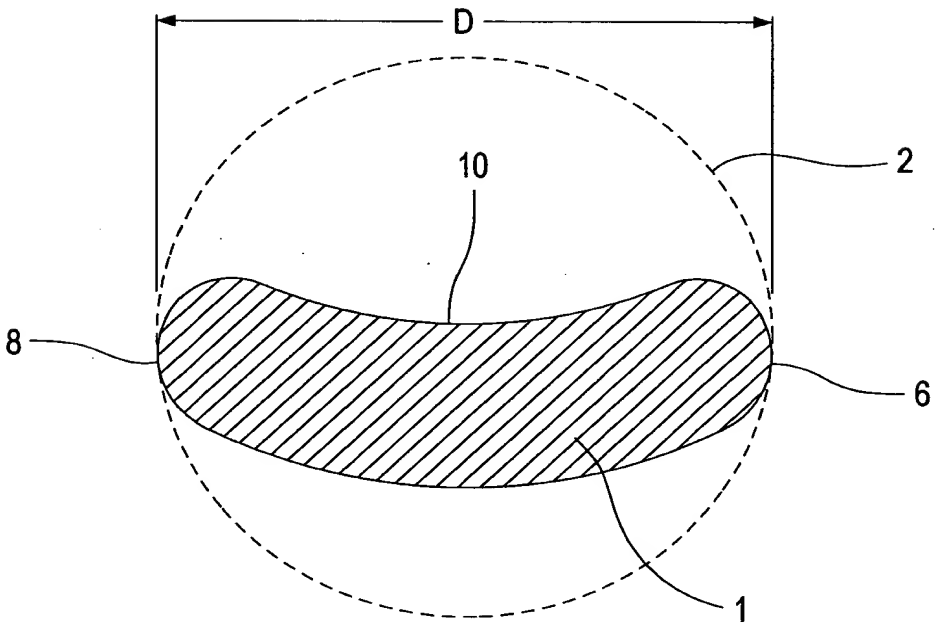
Fig.1



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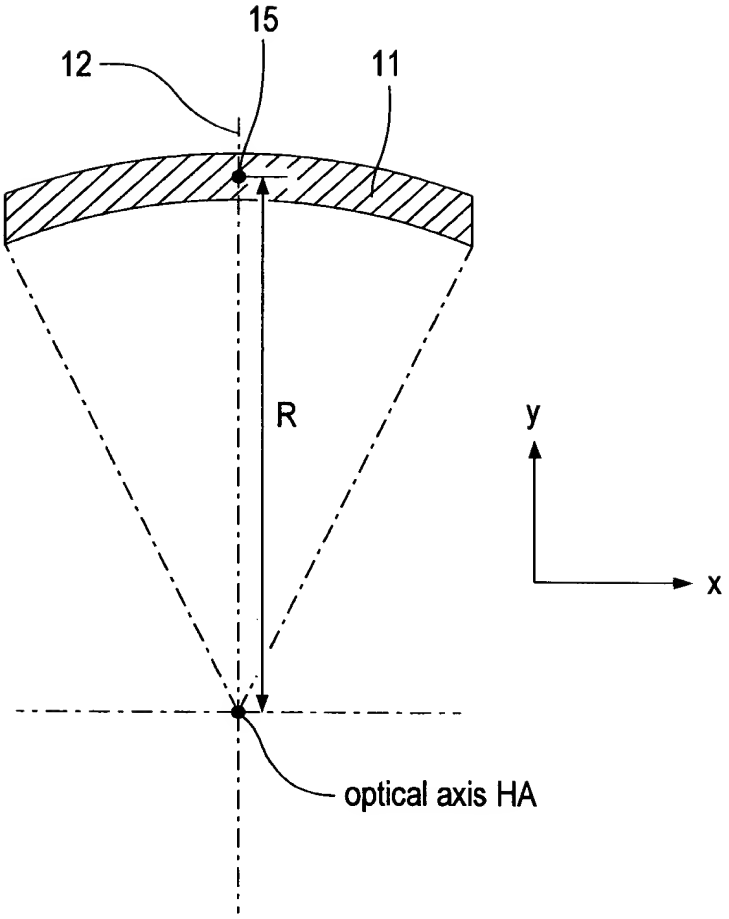

Fig.2

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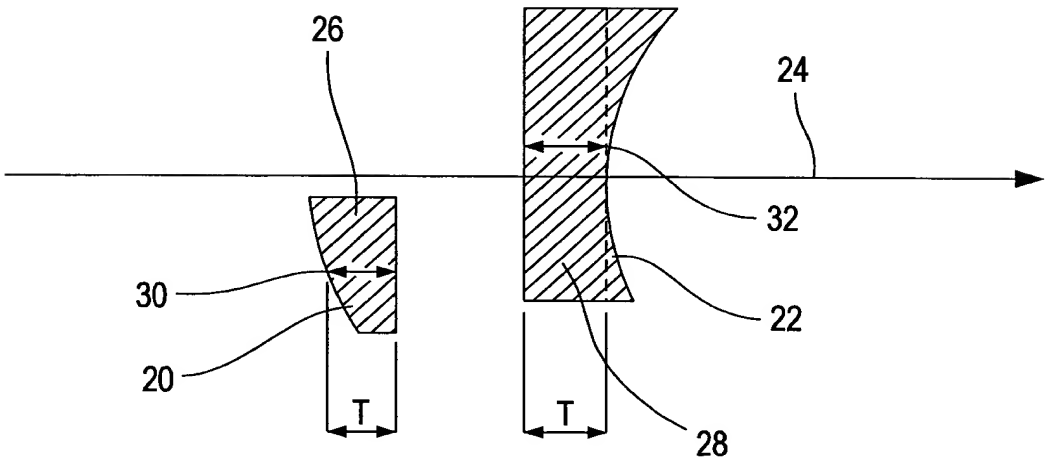
Fig.3



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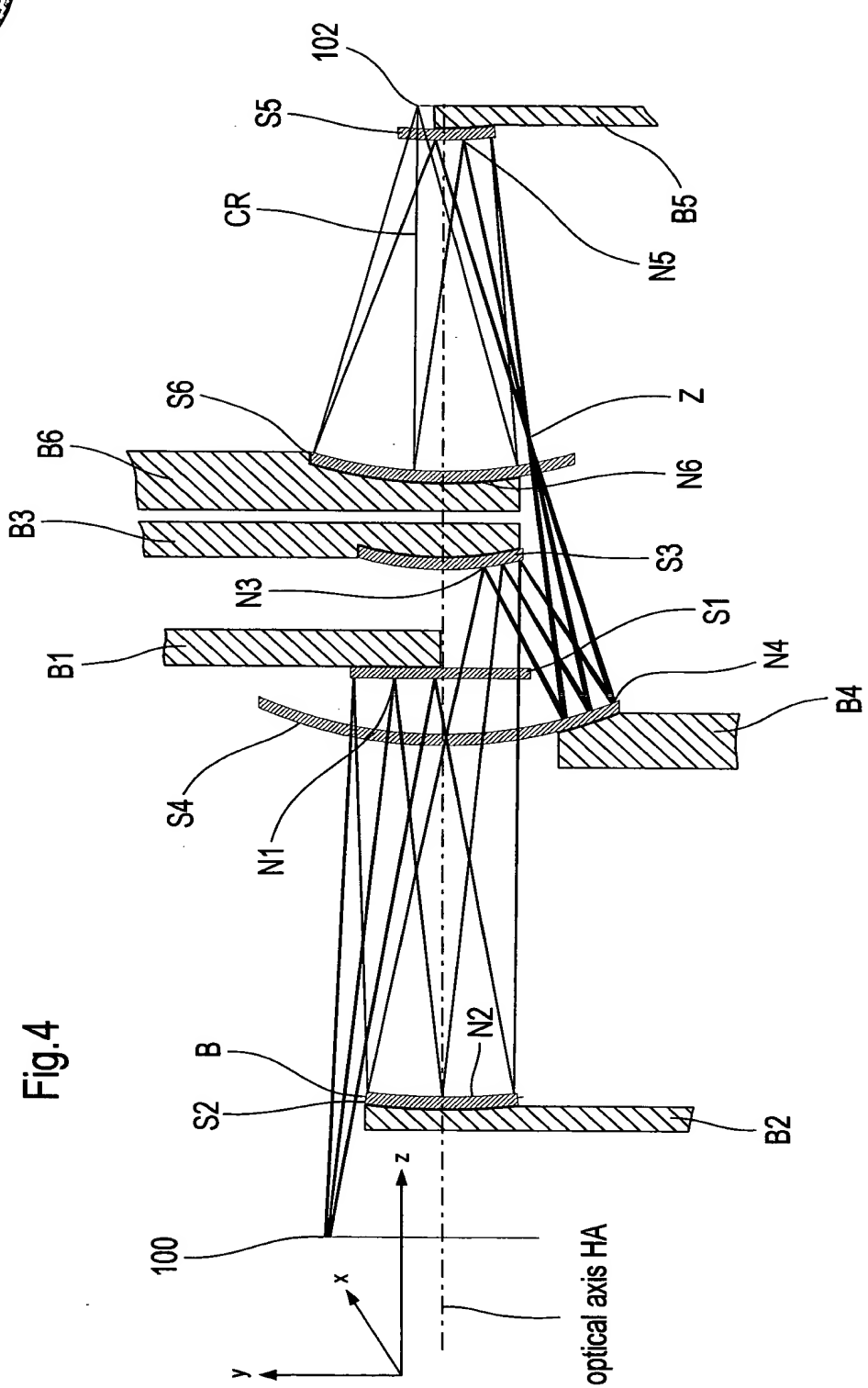

Fig.4

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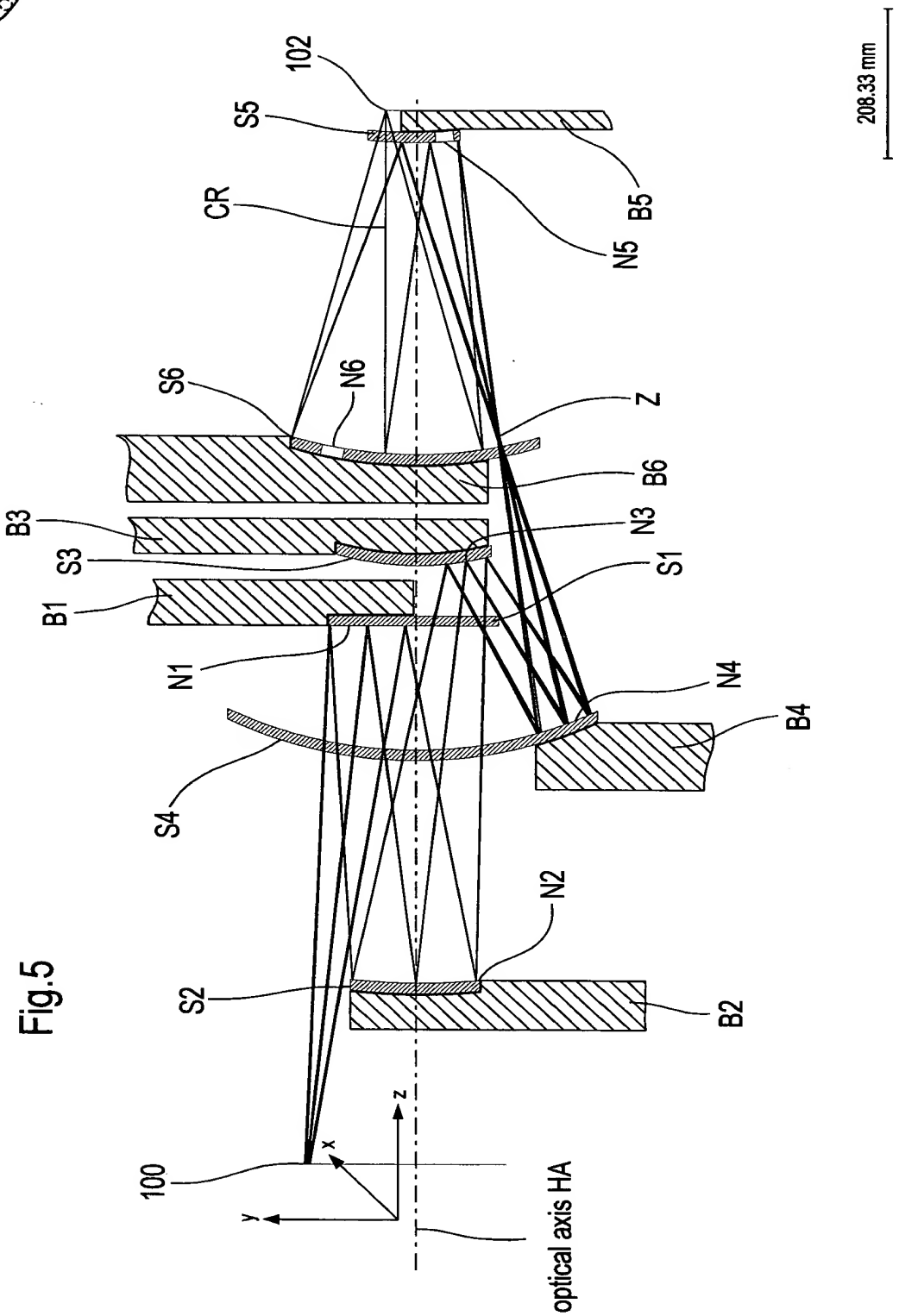

Fig.5

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Fig.6a

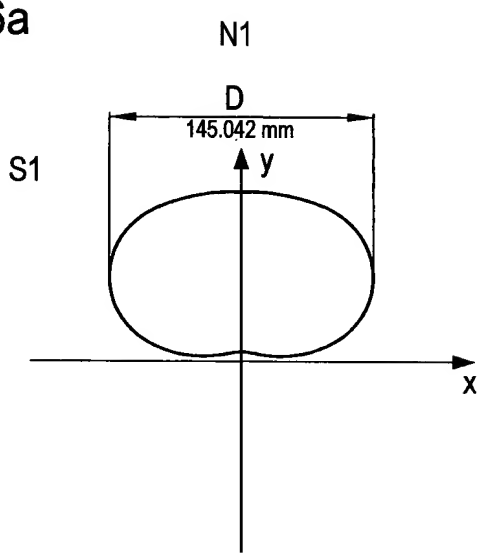

Fig.6b

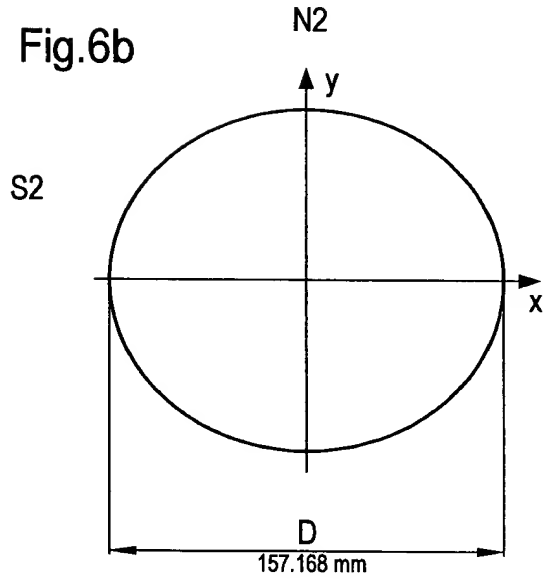

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Fig.6c

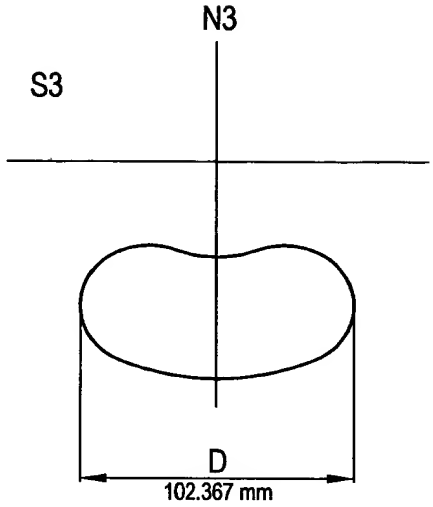

Fig.6d

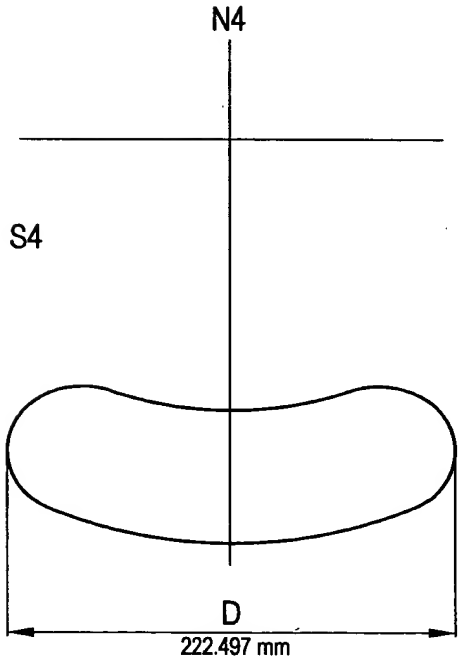

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Fig.6e

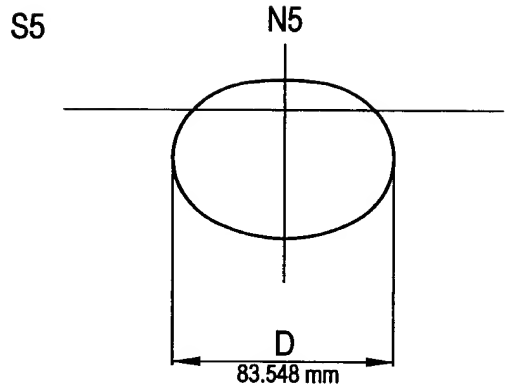
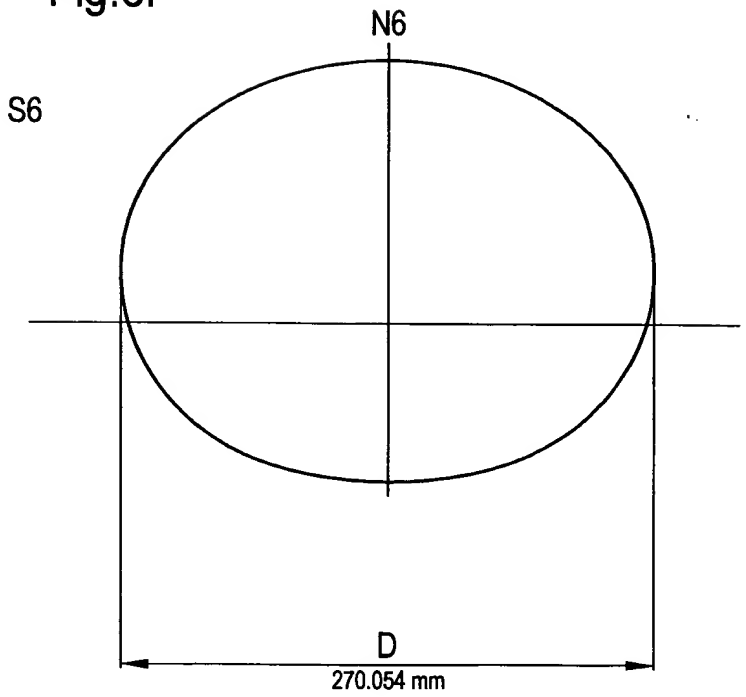


Fig.6f



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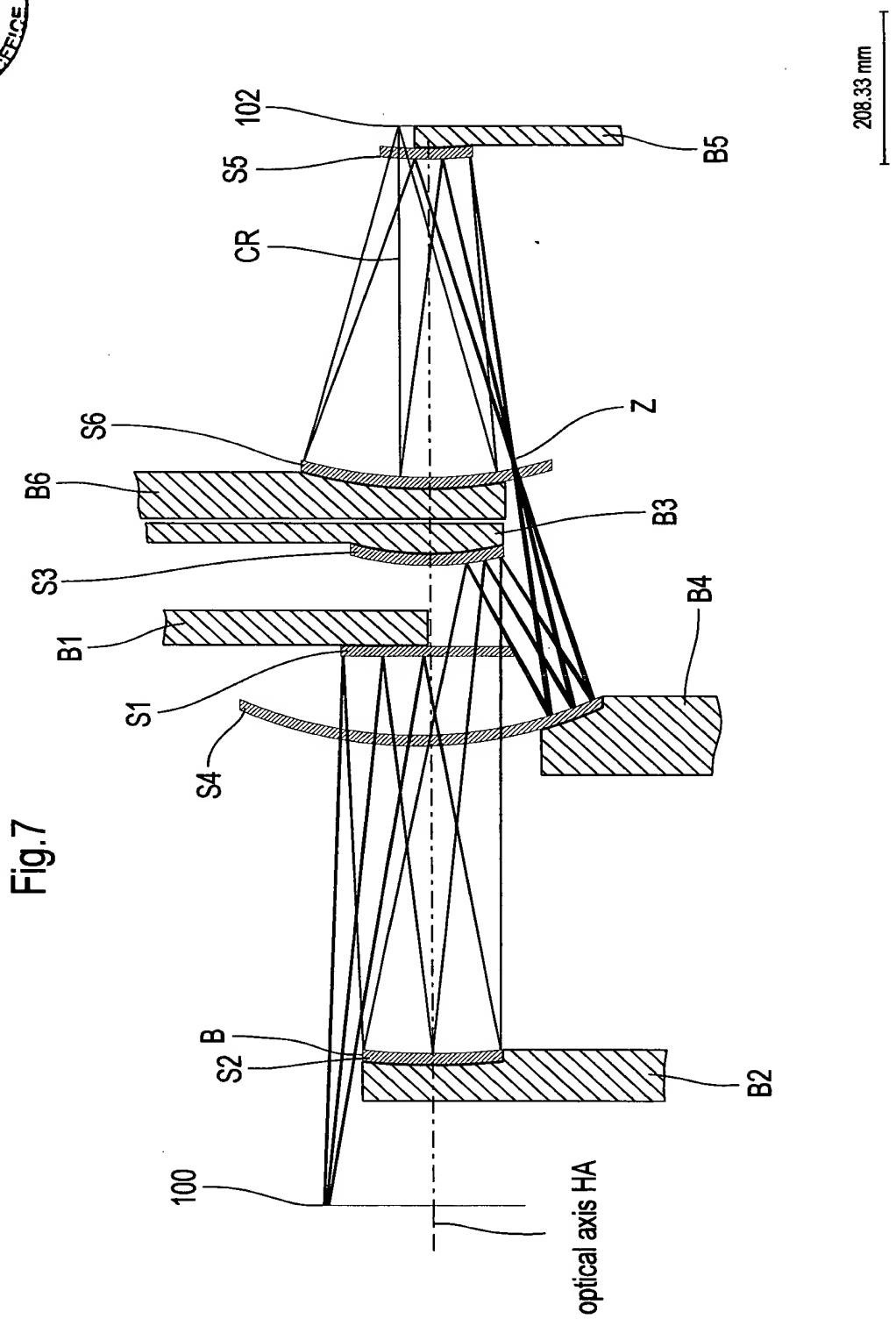

Fig.7

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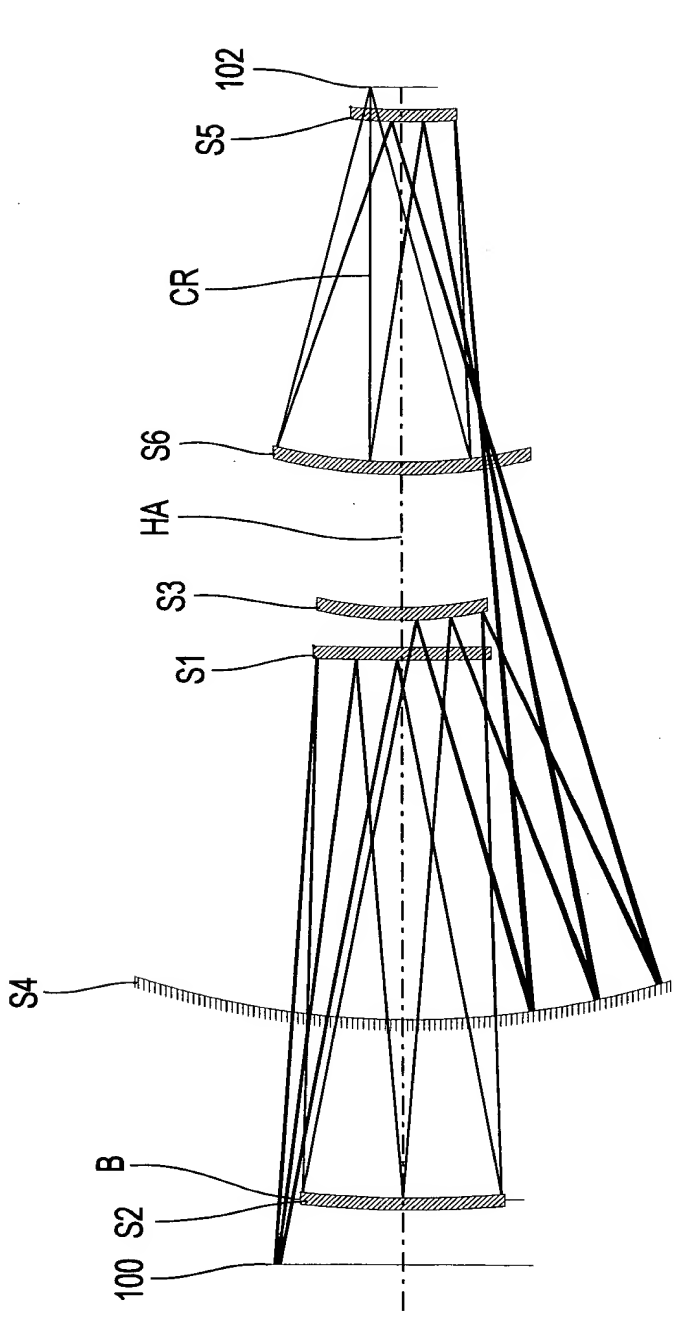

Fig.8

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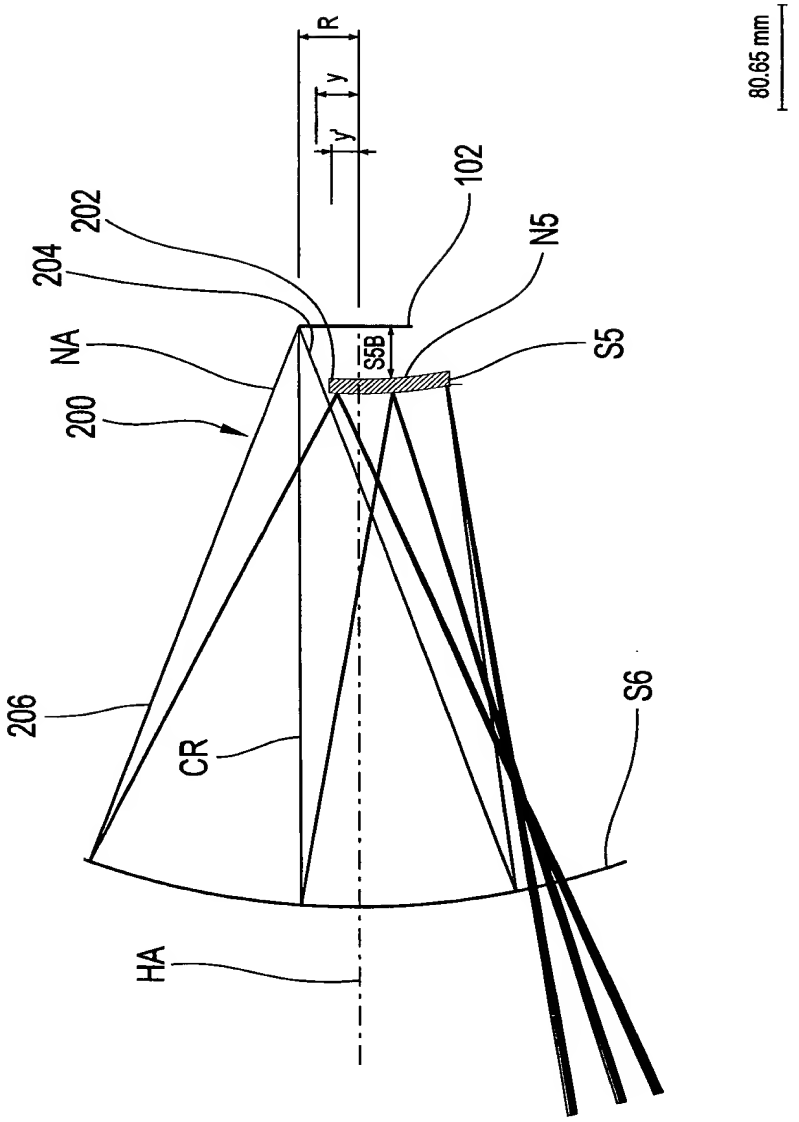
Fig.9



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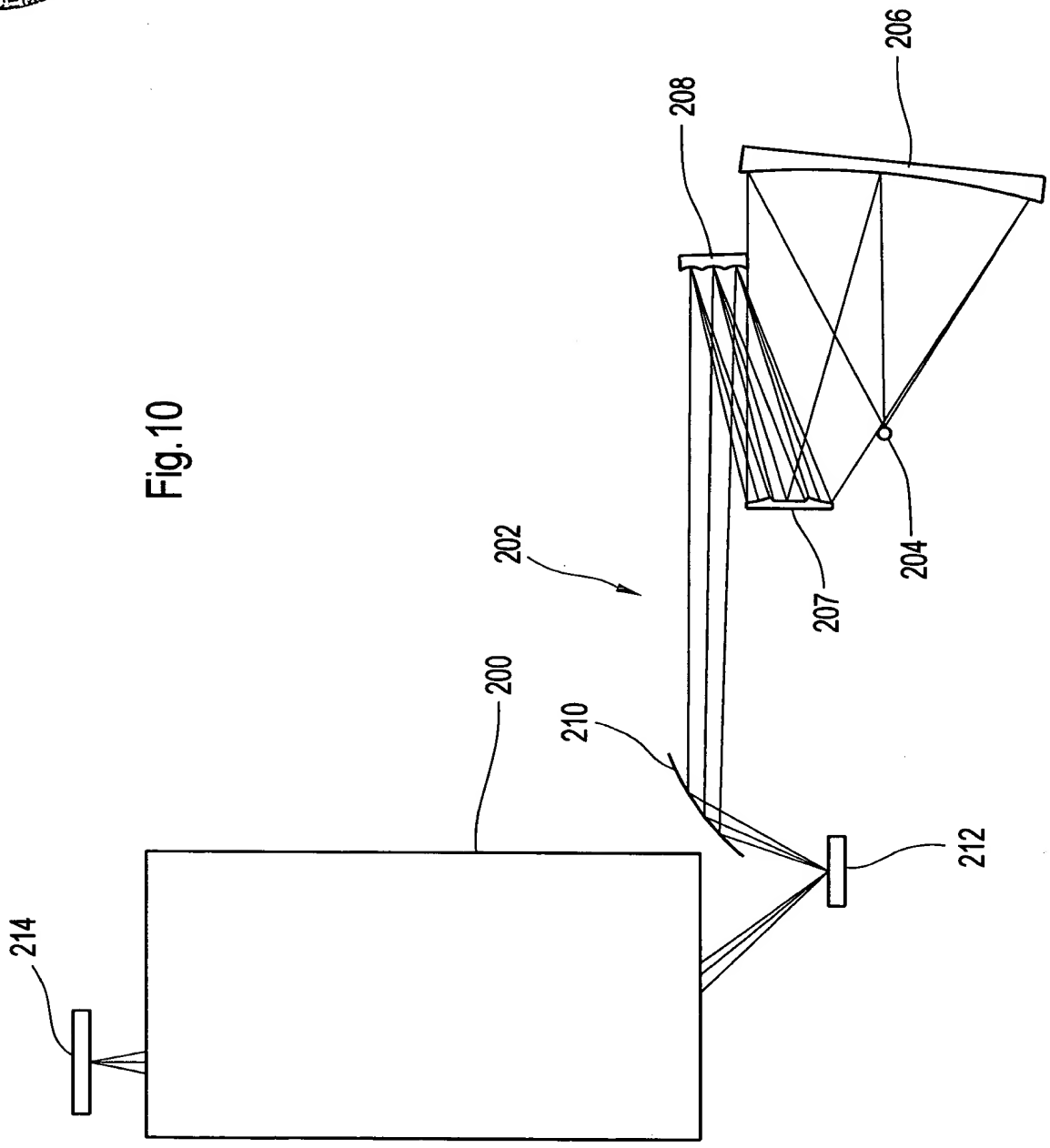

Fig.10

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Table 1

Element Number	Radius	Thickness	Diameter	Type
Object	INF	743.3276		
1	A(1)	-557.1863	210.8986	REFL
		aperture diaphragm	177.1640	
		0.0000		
2	A(2)	702.9968	177.3847	REFL
3	A(3)	-221.1310	191.0743	REFL
4	A(4)	787.9929	426.0706	REFL
5	A(5)	-436.7697	110.1796	REFL
6	A(6)	480.7697	310.6813	REFL
Image	INF		70.5007	

asperic constants

$$Z = \frac{(CURV)\,Y^2}{1 + (1 - (1 + K)\,(CURV)^2\,Y^2)^{1/2}} + (A)\,Y^4 + (B)\,Y^6 + (C)\,Y^8 + (D)\,Y^{10} + (E)\,Y^{12} + (F)\,Y^{14} + (G)\,Y^{16} + (H)\,Y^{18} + (J)\,Y^{20}$$

asperic profile	CURV	K E	A F	B G	C H	D J
A(1)	0.00006144	0.000000 1.87256E-29	5.4896E-10 0.00000E+00	-4.47710E-15 0.00000E+00	6.93597E-20 0.00000E+00	-1.61832E-24 0.00000E+00
A(2)	0.00092955	0.000000 -7.88639E-30	-4.50667E-11 0.00000E+00	-3.63055E-16 0.00000E+00	-3.52050E-21 0.00000E+00	7.46570E-26 0.00000E+00
A(3)	0.00284106	0.000000 1.64447E-27	-3.98337E-10 0.00000E+00	-2.92857E-15 0.00000E+00	8.46286E-19 0.00000E+00	-5.98614E-23 0.00000E+00
A(4)	0.00193867	0.000000 -1.71616E-31	-3.55491E-12 0.00000E+00	7.43877E-17 0.00000E+00	-5.36969E-22 0.00000E+00	2.36533E-26 0.00000E+00
A(5)	0.00179551	0.000000 -9.96256E-26	5.44569E-09 0.00000E+00	1.45719E-13 0.00000E+00	-5.07132E-18 0.00000E+00	1.13331E-21 0.00000E+00
A(6)	0.00186905	0.000000 4.44608E-32	6.69863E-11 0.00000E+00	3.06114E-16 0.00000E+00	1.29123E-21 0.00000E+00	2.82784E-27 0.00000E+00

Fig. 11

Reference wavelength = 13.4 nm
Imaging scale [reduction ratio] = 0.25
Image-side aperture = 0.25

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Table 2

Element Number	Radius	Thickness	Diameter	Type
Object	INF	763.1539		
1	A(1)	-508.8959	217.5892	REFL
		aperture diaphragm	157.2988	
		0.0000		
2	A(2)	592.9977	157.6458	REFL
3	A(3)	-263.0251	186.9465	REFL
4	A(4)	857.5155	464.9979	REFL
5	A(5)	-437.1855	110.6968	REFL
6	A(6)	481.2681	311.8894	REFL
Image	INF		70.8868	

asperic constants

$$Z = \frac{(CURV)\,Y^2}{1 + (1 - (1 + K)\,(CURV)^2\,Y^2)^{1/2}} + (A)\,Y^4 + (B)\,Y^6 + (C)\,Y^8 + (D)\,Y^{10} + (E)\,Y^{12} + (F)\,Y^{14} + (G)\,Y^{16} + (H)\,Y^{18} + (J)\,Y^{20}$$

asperic profile	CURV	K E	A F	B G	C H	D J
A(1)	-0.00009342	0.000000 3.09845E-29	5.02048E-10 0.00000E+00	-3.59798E-15 0.00000E+00	4.65491E-20 0.00000E+00	-1.24487E-24 0.00000E+00
A(2)	0.00094495	-0.000000 0.00000e+00	-8.64008E-11 0.00000E+00	-8.21885E-16 0.00000E+00	-7.41356E-21 0.00000E+00	-3.30260E-25 0.00000E+00
A(3)	0.00281349	0.000000 -3.93860E-27	-8.95729E-10 0.00000E+00	1.08088E-14 0.00000E+00	-1.55198E-18 0.00000E+00	1.20451E-22 0.00000E+00
A(4)	0.00176899	0.799352 -1.67295E-30	-6.05769E-10 0.00000E+00	-1.14820E-15 0.00000E+00	-3.64542E-20 0.00000E+00	2.50132E-25 0.00000E+00
A(5)	0.00182078	0.000000 -8.77929E-26	5.28849E-09 0.00000E+00	1.32507E-13 0.00000E+00	-2.78314E-18 0.00000E+00	7.00685E-22 0.00000E+00
A(6)	0.00186581	0.000000 5.80814E-32	6.68738E-11 0.00000E+00	3.06141E-16 0.00000E+00	1.34385E-21 0.00000E+00	1.39691E-27 0.00000E+00

Fig. 12

Reference wavelength = 13.4 nm
Imaging scale [reduction ratio] = 0.25
Image-side aperture = 0.25

Table 3

Element Number	Radius	Thickness	Diameter	Type
Object	INF	767.2557		
1	A(1)	-555.7033	216.0671	REFL
		aperture diaphragm	173.9832	
		0.0000		
2	A(2)	682.2766	174.2476	REFL
3	A(3)	-233.6859	188.2262	REFL
4	A(4)	794.6148	428.4537	REFL
5	A(5)	-436.8293	110.5239	REFL
6	A(6)	480.8400	310.5587	REFL
Image	INF		70.4765	

asperic constants

$$Z = \frac{(CURV)\,Y^2}{1 + (1 - (1 + K)\,(CURV)^2\,Y^2)^{1/2}} + (A)\,Y^4 + (B)\,Y^6 + (C)\,Y^8 + (D)\,Y^{10} + (E)\,Y^{12} + (F)\,Y^{14} + (G)\,Y^{16} + (H)\,Y^{18} + (J)\,Y^{20}$$

asperic profile	CURV	K E	A F	B G	C H	D J
A(1)	0.00000000	0.000000 2.03931E-29	5.67634E-10 0.00000E+00	-4.28505E-15 0.00000E+00	6.16577E-20 0.00000E+00	-1.42715E-24 0.00000E+00
A(2)	0.00092352	0.000000 -7.88639E-30	-4.50667E-11 0.00000E+00	-3.63055E-16 0.00000E+00	-3.52050E-21 0.00000E+00	7.46570E-26 0.00000E+00
A(3)	0.00277871	0.000000 1.08438E-27	-3.26329E-10 0.00000E+00	-7.02528E-16 0.00000E+00	5.33788E-19 0.00000E+00	-3.92007E-23 0.00000E+00
A(4)	0.00188296	0.000000 -6.94542E-31	-9.51406E-12 0.00000E+00	5.06179E-16 0.00000E+00	-9.93523E-21 0.00000E+00	1.33054E-25 0.00000E+00
A(5)	0.00185628	0.000000 -1.05073E-25	5.15785E-09 0.00000E+00	1.54832E-13 0.00000E+00	-5.20812E-18 0.00000E+00	1.16863E-21 0.00000E+00
A(6)	0.00186897	0.000000 6.23447E-32	6.62264E-11 0.00000E+00	2.99098E-16 0.00000E+00	1.29774E-21 0.00000E+00	1.07497E-27 0.00000E+00

Reference wavelength = 13.4 nm
Imaging scale [reduction ratio] = 0.25
Image-side aperture = 0.25

Fig. 13

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Table 4

Element Number	Radius	Thickness	Diameter	Type
Object	INF	739.9848		
1	A(1)	-659.9848	188.6091	REFL
		aperture diaphragm	219.3872	
		0.0000		
2	A(2)	709.9848	219.1277	REFL
3	A(3)	-492.0904	179.7699	REFL
4	847.3874 CC	1094.5501	577.4446	REFL
5	A(4)	-412.2537	109.4460	REFL
6	A(5)	452.2537	273.6442	REFL
Image	INF		71.0012	

asperic constants

$$Z = \frac{(CURV)\,Y^2}{1 + (1 - (1 + K)\,(CURV)^2\,Y^2)^{1/2}} + (A)\,Y^4 + (B)\,Y^6 + (C)\,Y^8 + (D)\,Y^{10} + (E)\,Y^{12} + (F)\,Y^{14} + (G)\,Y^{16} + (H)\,Y^{18} + (J)\,Y^{20}$$

asperic profile	CURV	K E	A F	B G	C H	D J
A(1)	0.00046523	0.000000 -3.23697E-28	-7.36323E-11 0.00000E+00	1.86189E-15 0.00000E+00	-7.73130E-20 0.00000E+00	8.54337E-24 0.00000E+00
A(2)	0.00092527	-0.000000 0.00000E+00	-5.11521E-11 0.00000E+00	-3.80687E-16 0.00000E+00	-3.05582E-21 0.00000E+00	-7.83597E-27 0.00000E+00
A(3)	0.00241893	0.000301 7.76365E-28	5.01337E-10 0.00000E+00	2.76322E-15 0.00000E+00	1.65053E-19 0.00000E+00	-1.79843E-23 0.00000E+00
A(4)	0.00112101	0.000000 2.29050E-25	6.42053E-09 0.00000E+00	6.30201E-15 0.00000E+00	6.16162E-18 0.00000E+00	-2.15921E-21 0.00000E+00
A(5)	0.00192607	0.000000 0.00000E+00	1.40503E-10 0.00000E+00	8.32770E-16 0.00000E+00	3.64734E-21 0.00000E+00	5.66305E-26 0.00000E+00

Reference wavelength = 13.4 nm
Imaging scale [reduction ratio] = 0.25
Image-side aperture = 0.23

Fig. 14

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